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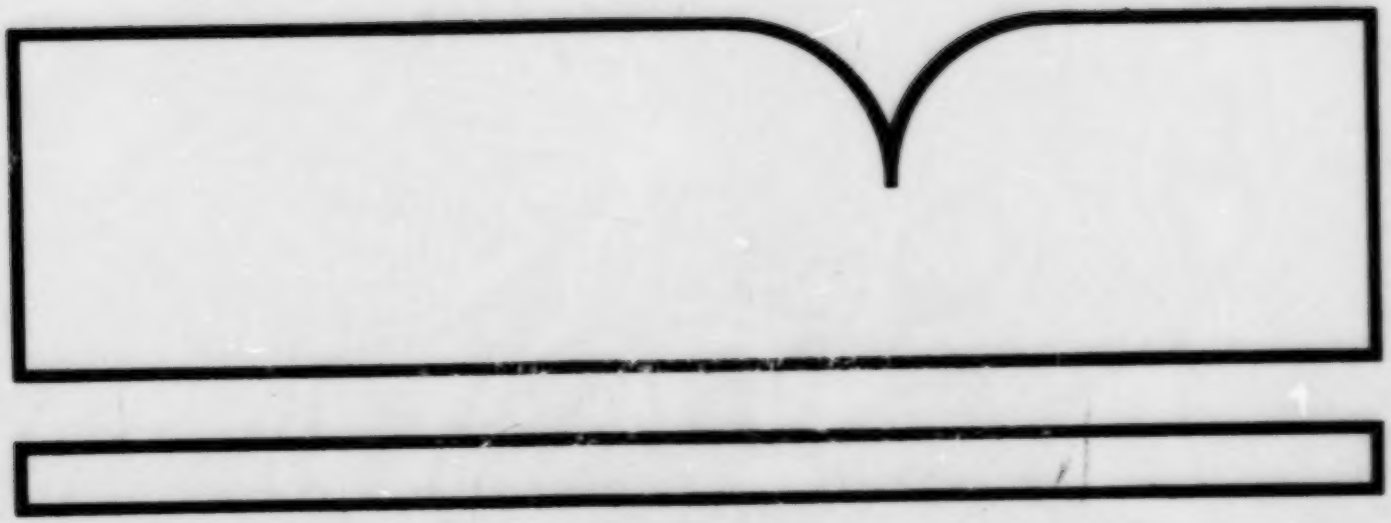
Chemical Substances Information Network (CSIN): An Overview

(U.S.) Interagency Toxic Substances Data Committee, Washington, DC

1984



U.S. Department of Commerce
National Technical Information Service
NTIS

PB85-135812

INTERAGENCY TOXIC SUBSTANCE DATA COMMITTEE

CHEMICAL SUBSTANCES INFORMATION NETWORK (CSIN)

AN OVERVIEW

Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

U.S. Environmental Protection Agency
Office of Toxic Substances
Washington, D.C. 20460

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The Chemical Substances Information Network (CSIN) is a sophisticated switching network based on heterogeneous distributed data base management and networking concepts which were only theory less than a decade ago. CSIN offers efficient and effective access to on-line information resources (systems) containing data and information relevant to chemical substances, as well as information covering other scientific disciplines and subject matters. The purposes of CSIN are two-fold; first to meet the growing chemical data and information requirements of industry, academe, government (Federal and State), public interest groups, and others, and secondly to reduce the burden on the private and public sector communities when responding to complex Federal legislation oriented to chemical substances.

CSIN is not another data base, but is a gateway system. CSIN links many independent and autonomous data and bibliographic computer systems oriented to chemical substances, establishing a "library of systems." Users may converse with any or all systems interfaced by CSIN without prior knowledge of or training on these independent systems, regardless of the hardware, software data, formats, or protocols of these information resources.

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b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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(See ANSI-Z39.18) See Instructions on Reverse OPTIONAL FORM 272 (4-77)
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INTERAGENCY TOXIC SUBSTANCE DATA COMMITTEE

CHEMICAL SUBSTANCES INFORMATION NETWORK (CSIN)

AN OVERVIEW

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Chemical Substances Information Network

(CSIN)

Introduction

The Chemical Substances Information Network (CSIN) is a sophisticated switching network based on heterogeneous distributed data base management and networking concepts which were only theory less than a decade ago. CSIN offers efficient and effective access to on-line information resources (systems) containing data and information relevant to chemical substances, as well as information covering other scientific disciplines and subject matters. The purposes of CSIN are two-fold; first to meet the growing chemical data and information requirements of industry, academe, government (Federal and State), public interest groups, and others, and secondly to reduce the burden on the private and public sector communities when responding to complex Federal legislation oriented to chemical substances.

CSIN is not another data base. CSIN links many independent and autonomous data and bibliographic computer systems oriented to chemical substances, establishing a "library of systems." Users may converse with any or all systems interfaced by CSIN (see Table 1) without prior knowledge of or training on these independent systems, regardless of the hardware, software, data, formats, or protocols of these information resources.

Information accessible through CSIN provides data on chemical nomenclature, composition, structure, properties, toxicity, production, uses, health and environmental effects, regulations, and other aspects of the life cycle of materials as they move through society. CSIN provides more data, information, and processing capabilities than could practicably or cost effectively be included in a single centralized data base. Users may now converse in and among multiple systems through a single connection point -- CSIN.

Benefits of CSIN for both private and public sector clients fall into four major areas: 1) increased productivity of professional staff; 2) improved responsiveness at low costs; 3) higher product quality; and 4) effective data sharing in and among the government, industry, and academe.

Administrative

CSIN is a project of the Interagency Toxic Substances Data Committee (ITSDC), a permanently chartered, multi-agency federal oversight committee. The Environmental Protection Agency (EPA) and the Council on Environmental Quality (CEQ) established the ITSDC in 1978 in accordance with statutory responsibilities identified under the Toxic Substances Control

Act (TSCA), Sections 10(b) and 25(b). These sections of the Act specifically recognize the need for interagency coordination with respect to chemical information collection, dissemination and classification.

Consisting of approximately 21 member agencies, the ITSDC is co-chaired by EPA and CEQ and operates to study, address and coordinate information activities of the major federal producers and users of chemical data. A major objective is to minimize the burden of reporting and analysis which is placed upon both the private and public sectors, by facilitating the collection, analysis and exchange of data and information among communities in the public and private sectors as well as academe and interested citizen groups.

Funding for CSIN operation, maintenance and support is provided by several federal programs through interagency agreements with CEQ. Contractual activities required for CSIN development and support are administered for CEQ by the Office of Administration, Executive Office of the President.

Technical Framework

The technical framework of CSIN is best understood by looking at a task a user would face and the environment in which it would be performed, if CSIN did not exist.

The CSIN user typically is concerned with retrieving information about a chemical or a related group of chemicals. The user may wish to know a chemical's properties, structure, effects, uses; who produces the chemical; where it is produced; pertinent regulations; or a myriad of other kinds of information. This data is generally available from on-line computer systems such as DIALOG, ORBIT, the National Library of Medicine, CAS On-Line, and The Chemical Information System (CIS).

There are over 200 on-line data bases that can be of interest in answering such questions. The problem is that these data bases are:

- geographically dispersed
- stored in various formats
- indexed according to different methods
- accessed in different languages

Answering typical questions requires access to multiple computer systems; hours of on-line connect time; retrieval of data from one system and re-entry in another system, most often requiring a different format; detailed knowledge of many aspects of system behavior, including how specific commands are interpreted, how each system classifies error conditions, as well as how it deals with matters such as truncation, segmentation, and chemical nomenclature.

The issue of chemical nomenclature has particular importance for CSIN. There is no single way a chemical is indexed in all the data bases of interest. Some data bases use the Chemical Abstracts Registry Number; others do not. Certain data bases tend to use certain synonyms or trade names; others use more technical names. In searching sets of independent data bases for a chemical or a group of chemicals, the only reliable way to retrieve all relevant data is to use a comprehensive set of chemical identifiers. On the other hand, when a particular data base routinely indexes by a single identifier, that fact can be exploited in constructing the search strategy.

The approach used in CSIN development to date has been to interpose a front-end (intermediary) management system between the user and the information resources. There are two key considerations in the design of such a system: the information resources and the users.

The information resources reside in existing, geographically dispersed, independently operated data base systems. A specific design consideration for CSIN was that vendors would not be required to make any change in their operations. CSIN users should look like any other user to their system. This demands that CSIN software be constructed so as to be knowledgeable about all aspects of system and communications interactions and functions.

A second characteristic of CSIN is that its users are geographically dispersed. This presents several requirements in terms of maintenance and support, particularly with an evolving system.

From a functional perspective, CSIN supports several types of search operations. They are listed as follows in increasing order of processing sophistication: direct connect mode, enhanced direct connect mode, and script mode. In addition, CSIN has available a variety of "utilities" to support the searches and permit users to customize CSIN's approaches. CSIN also allows users to share information and search strategies within a defined user group (see Figure 1).

"Scripts" are simply guided searches. CSIN leads a user through a series of menus that tailor the search to a specific application. In contrast to direct mode, a script mode search is more automated. Users can work with the carefully designed CSIN menus and logic rather than having to learn the languages and logics of a variety of distinct remote systems. Nothing needs to be known about the mechanics of the remote systems.

Currently, the available scripts include:

- CHEMID
- TOXEFF
- MANUFACT

The names of the scripts give a clear idea of the main purpose of each. CHEMID searches for chemical identification information (formal nomenclature, synonyms, registry numbers, trade names, etc.). TOXEFF returns information about toxic effects of chemicals (e.g. carcinogenicity, teratogenicity, etc.). MANUFACT searches for data on the production and manufacture of chemicals (e.g. location or region of production, producer, quantities, etc.).

Scripts, however, are extremely flexible. Scripts search data bases with query lists which are files containing terms for a specific search. Query lists instruct remote data bases as to precisely what terms should be present in the information being sought. CSIN provides a number of standard query lists designed by professional searchers. Users can use these lists or through the "utilities" of CSIN they can modify them or create their own unique lists (see Figure 2).

In Script mode CSIN does the following:

- Provides a selection of data bases to search.
- Provides system query lists to include in searching.
- Provides logical structure for the Boolean operatives used to create query lists.
- Automatically dials up and logs on to selected data bases
- Sends all user specified queries and files.
- Searches designated data bases.
- Retrieves, stores and/or prints results.

Direct mode links users directly to a remote system. Direct connection requires more user interaction and knowledge. At the highest level of user involvement, CSIN merely dials and connects to the remote system. Here the user has complete free rein with the search. Working at this level clearly requires the user to be familiar with the language and logic of the remote system.

However, the user is never without some CSIN capability. At any time in a search the user can invoke CSIN without disconnecting from the remote system. This "Enhanced" Direct Search makes available to the user a number of CSIN features that provide considerable assistance in searching data bases that do not yet have scripts written for them. (See Table 2 for a detailed listing of the numerous data bases available in Direct and Enhanced Direct connect modes.) Enhanced Direct Mode Features include:

- Substituting a stored file for input to the remote system (these can be the equivalent of query lists used in the Script Mode).

- Transforming a system or user file into the proper format for searching the desired data bases.

- Performing data capture into the CSIN computer.

- Editing the captured file of data.

CSIN provides a number of useful operations called "Utilities," which can be used in both Script and Direct modes. These utilities include file operations, query list operations, and operations to 'change flag settings' - which is a method of tailoring user interactions with CSIN.

A "file" can be compared to a physical container, such as a file folder full of information (see Figure 3). Files stored on the CSIN computer can be the results of searches of remote systems, search terms for direct mode searching, or user entered text. File operations enable users to list file names (along with their size and last date of modification), display file contents, copy files, rename, delete, print or edit files. Users may also transfer files to other users within their defined user group.

Query lists are files with a special purpose: they contain search terms that help define a user's search. Query lists instruct the remote systems as to exactly what kind of information the user wants. In addition to the query lists mentioned in Figure 2, CSIN's utilities enable users to modify the system lists or create their own lists from scratch.

CSIN can also transform user files of information (from other systems or from the user) into the proper form for searching a wide variety of data (see Figure 4). In Script mode this is done automatically for those data bases available in a given script. Transforms permit a much larger number of data bases to be searched in the enhanced direct mode.

CSIN provides access to a standard line-oriented editor based on the UNIX editor "XED" that can be used to modify and create files and query lists. It also merges and restructures files.

Over the past two years, CSIN has evolved into a dynamic flexible and highly refined networking tool for researching chemical and non-chemical data bases. All of CSIN's components have been undergoing progressive improvement since CSIN's inception in 1980. Many changes have come as a direct result of user experience and suggestions. Although CSIN is still in its prototype phase, it can access and speed user searching of over 400 data bases. As more query lists are developed and shared by users, and as more data bases become available through CSIN, it will become an ever more vital tool for both professional and non-professional searchers, including the end-users of data and information.

Future Considerations

Advances in information processing technology are radically changing the way we access and use information. New data bases are constantly being developed that are of interest to the scientific and technical community. For CSIN to meet its ultimate objectives, it must be financially self-sustaining. It can never serve a large user community unless it is capable of paying its own cost. CSIN has made substantial progress towards this goal for a system which was so recently conceived. It is already viewed as an operational resource by many of its users. But for CSIN to become self-sustaining, it must certainly evolve further.

Part of that evolution involves broadening of the CSIN user group. A number of users from private industry have already joined the CSIN community. (A list of organizations formally trained in the use of the CSIN technology is shown in Table 3.) This broadening base of CSIN users relates directly to the economic aspects of CSIN. Currently CSIN is supported and maintained by the federal government. However, it is not expected that this subsidization will continue indefinitely. Rather, it is anticipated that once the prototype has achieved additional functionality and continues to realize performance gains that translate directly into increased productivity, it will be appropriate for users to pay for some portion of the usage of the "front end or management computer."

By involving users in the development of CSIN, and by maintaining a posture that encourages participation in determining design features and priorities, CSIN can be assured a future as a self-supporting information tool.

Over the period of the next two years, in addition to training new users and adding new public and private vendors of data and information, Network Administration, through its development and support contractors, plans to install value added features to CSIN to increase its functionality and efficiency. Rapid advances in microprocessor technology now make powerful computers available as individual workstations. Network Administration will move to develop a CSIN workstation that will provide all the basic CSIN capabilities in a single-user environment. Additional features to be added to CSIN are: Word Processing - to provide help in the post-processing and report generation phase; Sort - to allow for standardizing formats and identifying duplicate records; Mail - to facilitate better communication among users and foster a greater sense of community; New scripts for hazardous wastes, environmental effects, and Federal/State regulations. Concurrently, CSIN Administration will be moving to add additional information resources, i.e. Hazardline, Corps of Engineers Environmental Technical Information System, (ETIS), the Toxicology Data Management System, (TDMS), of the National Toxicology Program, and possibly DARC/Questel; also, additional transforms will be added to interact with and increase the array of databases presently available under CSIN.

By completing all the technical enhancements as outlined above, CSIN Administration will be capable of placing the developed technology in a position for private sector involvement while still being able to meet the needs of the Federal community.

CHEMICAL SUBSTANCES INFORMATION NETWORK

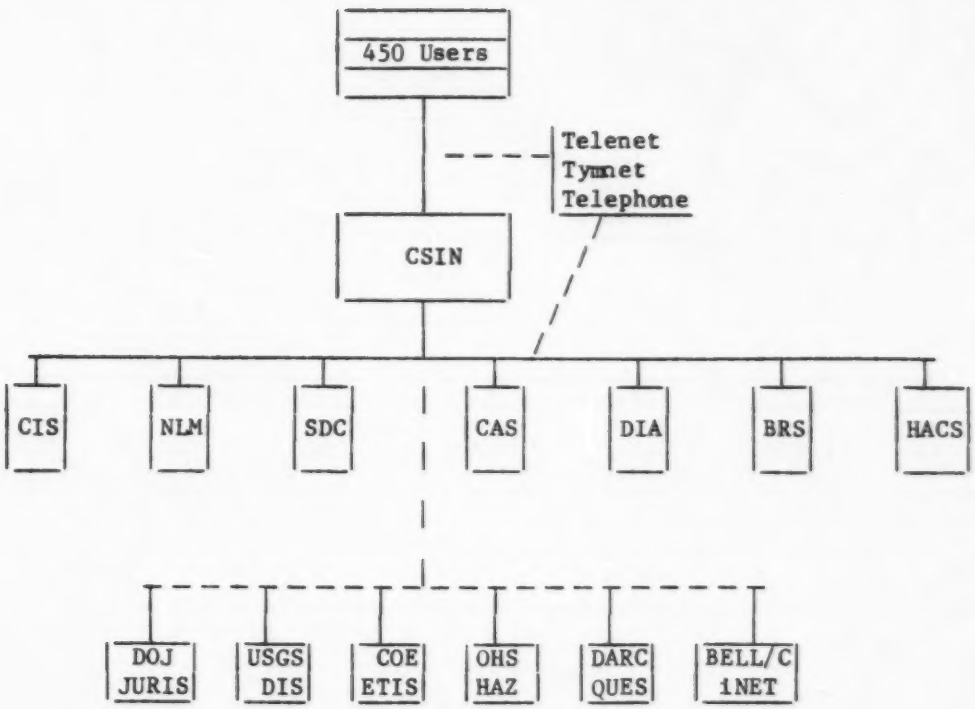

TABLE 2

DATA BASES AVAILABLE THROUGH CSIN:

	DATA BASES:	SCRIPT	ENHAN.	DIRECT	DIRECT
NLM:	AVLINE		X		X
	BIOETHICS		X		X
	CANCERLIT	X	X		X
	CANCERPROJ	X	X		X
	CATLINE				X
	CHEMLINE	X	X		X
	CLINPROT		X		X
	EPILEPSY		X		X
	HEALTH PLAN&ADMIN				X
	HISTLINE		X		X
	MEDLEARN				X
	MEDLINE		X		X
	MEDBACK		X		X
	POPLINE		X		X
	RTECS	X			X
	SERLINE				X
	TDB	X			X
	TOXLINE	X	X		X
	TOXBACK		X		X
SDC:	ACCOUNTANTS		X		X
	APILIT		X		X
	APIPAT		X		X
	ASI		X		X
	BANKER		X		X
	BIOSIS	X	X		X
	BIOTECHNOLOGY	(a subscriber data base)			
	CAS	X	X		X
	CASSI				X
	CEH ONLINE (available late 1983 - subscriber's only)				
	CHEMDEX	X	X		X
	CHEMSDI	(available late 1983)			
	CIN	X	X		X
	CIS		X		X
	COLD		X		X
	COMPENDEX		X		X
	CRDS				X
	CRECORD		X		X
	DBI		X		X
	EBIB		X		X
	EDB		X		X

DATA BASES:	SCRIPT	ENHAN.	DIRECT	DIRECT
EIMET		X		X
ENERGYLINE		X		X
ENVIROLINE		X		X
EPIA		X		X
ERIC		X		X
FEDEX		X		X
FEDREG		X		X
FOREST		X		X
FSTA		X		X
GRANTS		X		X
INFORM		X		X
INSPEC		X		X
LABORDOC		X		X
LIBCON		X		X
LISA		X		X
MANAGEMENT		X		X
METADEX		X		X
MDAS/1				X
MONITOR		X		X
NDEX		X		X
NTIS	X	X		X
NUC/CODES		X		X
ORBIT/ORBCHEM/ORBPAT				X
PAPERCHEM		X		X
P/E NEWS		X		X
PESTDOC/PESTDOCII				X
PIE		X		X
POWER		X		X
PSYCHINFO		X		X
RINGDOC				X
SAE		X		X
SPORT		X		X
TITUS		X		X
TROPAG		X		X
TSCA	X	X		X
TULSA		X		X
USGCA		X		X
USCLASS				X
USPA		X		X
USRFP		X		X
VETDOC				X
WATERLIT		X		X
WPI/WPIL				X

DATA BASES:	SCRIPT	ENHAN.	DIRECT	DIRECT
CAS: CAS ONLINE		X		X

10

DATA BASES:	SCRIPT	ENHAN. DIRECT	DIRECT
CIS: ARTHUR			X
CCRIS			X
CESARS			X
CHEMLAB			X
CHEMLAW			X
CNMR			X
CRYST			X
CTCP			X
FRSS			X
IRSS			X
MLAB			X
MSSS			X
NUCSEQ			X
OHMTADS			X
RTECS	X		X
SANSS	X		X
SPHERE			X
THERMO			X
TSCAPP			X
WDROP			X
XTAL			X

DATA BASES:	SCRIPT	ENHAN. DIRECT	DIRECT
BRS:			
AAED		X	X
ABLE		X	X
BBIP		X	X
BEBA		X	X
BIOL	X	X	X
BOOK		X	X
CAIN		X	X
CAST		X	X
CHEM	X	X	X
CFTX		X	X
COMP		X	X
CRFW		X	X
DISS		X	X
DOED		X	X
DRUG		X	X
ECER		X	X
EICI		X	X
EIST		X	X
EIVI		X	X
EPIL		X	X

//

DATA BASES:	SCRIPT	ENHAN. DIRECT	DIRECT
ERIC		X	X
FEDE		X	X
FNTL		X	X
FSIS		X	X
GPOM		X	X
HARF		X	X
HBRO		X	X
HLTH		X	X
INFO		X	X
INSP		X	X
IPAB		X	X
IRCS		X	X
ISMS		X	X
JSAH		X	X
MATH		X	X
MESH	X	X	X
MGMT		X	X
MLAB		X	X
MLSS		X	X
MMYD		X	X
MWSC		X	X
NCFR		X	X
NCMH		X	X
NIMI		X	X
NISH		X	X
NRIC		X	X
NTIS	X	X	X
ONED		X	X
PAIS		X	X
POLL		X	X
PSYC		X	X
PTSA		X	X
PTSP/PTSH		X	X
PTSI/PTSF		X	X
RELI		X	X
RICE		X	X
RIVE		X	X
SOCA		X	X
SSCI		X	X
STDS		X	X
TERM		X	X
ULRI		X	X
USBE		X	X

DATABASES:	SCRIPT	ENHAN.DIRECT	DIRECT
DIA: Lockheed Dialog (file numbers in parenthesis)			
ABI/INFORM (15)		X	X
ADTRACK (43)		X	X
AGRICOLA (10,110)		X	X
AIM/ARM (9)			X
AMERICA: HIST. AND LIFE (38)		X	X
AMERICAN MEN & WOMEN OF SCIENCE (236)			X
APTIC (45)		X	X
AQUACULTURE (112)		X	X
AQUALINE (116)		X	X
AQUATIC SCI. & FISH. ABS. (44)		X	X
ARTBIBLIO. MODERN (56)		X	X
A. D. LITTLE/ONLINE (192)		X	X
ASI (102)		X	X
BHRA FLUID ENGINEERING (96)		X	X
BI/DATA FORECASTS (129)			X
BI/DATA TIME SERIES (128)		X	X
BIOGRAPHY MASTER INDEX (88)		X	X
BIOSIS PREVIEWS (5,55)	X	X	X
BLS CONSUMER PRICE INDEX (175)		X	X
BLS EMPLOYMENT, HOURS AND EARNINGS (178)		X	X
BLS LABOR FORCE (177)			X
BLS PRODUCER PRICE INDEX (176)		X	X
BOOK REVIEW INDEX (137)			X
BOOKS IN PRINT (470)			X
CA SEARCH (308-311,320)	X	X	X
CAB ABSTRACTS (50)		X	X
CAREER PLACEMENT REGISTRY/ EXPERIENCED PERSONNEL (162)		X	X
CAREER PLACEMENT REGISTRY/ STUDENT (163)		X	X
CATFAX: DIR. OF MAIL ORDER CATALOGS (198)			X
CIN (19)	X	X	X
CHEMICAL REG. AND GUIDELINES SYSTEM (174)		X	X
CHEMLAW (197)		X	X
CHEMNAME (301)	X		X
CHEMSEARCH (30)	X		X
CHEMSIS (328-331)	X		X
CHEMZERO (300)	X		X

DATABASES:	SCRIPT	ENHAN.DIRECT	DIRECT
CHILD ABUSE AND NEGLECT (64)		X	X
CHRONOLOG NEWSLETTER (410)		X	X
CIS (101)		X	X
CLAIMS/			
CITATION (220-222)			X
CLASS (124)		X	X
COMPOUND REGISTRY (242)		X	X
UNITERM (223-225)		X	X
US PAT. ABS. (23-25)		X	X
US PAT. ABS. WEEKLY (125)		X	X
COFFEELINE (164)		X	X
COMMERCE BUSINESS DAILY (194, 195)		X	X
COMPENDEX (8)		X	X
COMP. DISSERTATION INDEX (35)			X
CONFERENCE PAPERS INDEX (77)		X	X
CONG. RECORD ABS. (135)			X
CRIM. JUST. PERIODICAL INDEX (171)		X	X
CRIS/USDA (60)		X	X
DIALINDEX (411)		X	X
DIALOG PUBLICATIONS (200)		X	X
DISCLOSURE II (100)		X	X
DOE ENERGY (103)		X	X
DUN'S:			
MARKET IDENTIFIERS 10+ (516)		X	X
MILLION DOLLAR DIR. (517)		X	X
PRIN. INT. BUSINESSES (518)		X	X
ECONOMICS ABSTRACTS INT. (90)		X	X
ECONOMICS LITERTURE INDEX (139)		X	X
E1 ENGINEERING MEETINGS (165)		X	X
EIS INDUSTRIAL PLANTS (22)		X	X
EIS NONMANUFACT. ESTAB. (92)		X	X
ELECTRIC POWER DATABASE (241)		X	X
ELECTRONIC YELLOW PAGES -			
CONSTRUCTION DIR. (507)		X	X
FINANCIAL SERVICES DIR. (501)		X	X
MANUFACTURERS DIR. (510)		X	X
PROFESSIONALS DIR. (502)		X	X
RETAILERS DIR. (504-506)		X	X
SERVICES DIR. (508,509)		X	X
WHOLESALERS DIR. (503)		X	X
ENCYCLOPEDIA OF ASSN'S. (114)		X	X
ENERGYLINE (69)		X	X
ENERGYNET (169)		X	X
ENVIROLINE (40)		X	X
ENV. BIBLIO. (68)		X	X
ERIC (1)		X	X

DATABASES:	SCRIPT	ENHAN.DIRECT	DIRECT
EXCEPTIONAL CHILD ED. RESOUR. (54)		X	X
EXCERPTA MEDICA (72, 73, 172)	X	X	X
FED. REGISTER ABST. (136)		X	X
FIND/SVP REPORTS & STUDIES INDEX (196)		X	X
FOOD SCI. & TECH. ABS. (51)		X	X
FOODS ADLIBRA (79)		X	X
FOREIGN TRADERS INDEX (105)			X
FOUNDATION DIR. (26)		X	X
FOUNDATION GRANTS INDEX (27)		X	X
GEOARCHIVE (58)		X	X
GEOREF (89)		X	X
GPO MONTHLY CATALOG (66)		X	X
GPO PUB. REF. FILE (166)			X
GRANTS (85)		X	X
HARFAX IND. DATA SOURCES (189)		X	X
HARVARD BUS. REVIEWS (122)			X
HEALTH PLAN. & ADMIN. (151)		X	X
HISTORICAL ABS. (39)		X	X
INPADOC (123)		X	X
INSPEC (12, 13)		X	X
INSURANCE ABS. (168)		X	X
INT'L. PHARM. ABS. (74)		X	X
INT'L. SOFTWARE DATABASE (232)		X	X
IRIS (53)		X	X
ISMEC (14)			X
LABORLAW (244)		X	X
LANG. AND LANG. BEHAV. ABS. (36)		X	X
LC MARC (426)			X
LEGAL RESOURCE INDEX (150)			X
LIFE SCIENCES COLLECTION (76)	X	X	X
LISA (61)		X	X
MAGAZINE INDEX (47)		X	X
MANAGEMENT CONTENTS (75)		X	X
MATHFILE (239)		X	X
MEDLINE (152-154)	X	X	X
MENTAL HEALTH ABS. (86)			X
METADEX (32)			X
METEO. AND GEOASTROPHYSICAL ABS. (29)		X	X
MICROCOMPUTER INDEX (233)		X	X
MLA BIBLIO. (71)		X	X
NATIONAL FOUNDATIONS (78)			X
NATIONAL NEWSPAPER INDEX (111)		X	X
NCJRS (21)		X	X
NEWSEARCH (211)		X	X

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DATABASES:	SCRIPT	ENHAN.DIRECT	DIRECT
NICEM (46)		X	X
NICSEM/NIMIS (70)		X	X
NONFERROUS METALS ABS. (118)		X	X
NTIS (6)	X	X	X
OCEANIC ABS. (28)		X	X
ONLINE CHRONICLE (170)		X	X
ONTAP:			
ABI/INFORM (215)		X	X
CA SEARCH (204)			X
CHEMMANE (231)			X
COMPENDEX (208)		X	X
DIALINDEX (290)			X
ERIC (201)			X
INSPEC (213)			X
MAGAZINE INDEX (247)		X	X
MEDLINE (254)		X	X
PTS PROMT (216)		X	X
PAIS INT'L. (49)		X	X
PAPERCHEM (240)		X	X
PATLAW (243)		X	X
PHARMACEUTICAL NEWS INDEX (42)		X	X
PHILOSOPHER'S INDEX (57)		X	X
POLLUTION ABS. (41)		X	X
POPULATION BIBLIOGRAPHY (91)		X	X
PSYCHINFO (11)		X	X
PTS:			
ANNUAL REPORTS ABSTRACT (17)		X	X
F&S INDEXES (18, 98)		X	X
FEDERAL INDEX (20)		X	X
INT'L FORECASTS (83)			X
INT'L TIME SERIES (84)			X
PROMT (16)	X	X	X
U.S. FORECASTS (81)			X
U.S. TIME SERIES (82)			X
REMARC (421-425)		X	X
RILM ABS. (97)			X
SCISEARCH (34, 94, 186, 187)	X	X	X
SOCIAL SCISEARCH (7)			X
SOCIOLOGICAL ABS. (37)		X	X
SPIN (62)		X	X
SSIE CURRENT RES. (65)		X	X
S & P'S NEWS (132)		X	X
S & P'S NEWS DAILY (133)		X	X
STANDARDS & SPEC. (113)		X	X
SURFACE COATINGS ABS. (115)		X	X
TELEGEN (238)		X	X

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DATABASES:	SCRIPT	ENHAN.DIRECT	DIRECT
TEXTILE TECH. DIGEST (119)		X	X
TRADE AND INDUS. INDEX (148)		X	X
TRADE OPPOR. (106)		X	X
TRADE OPPOR. WEEKLY (107)		X	X
TRIS (63)		X	X
TSCA INITIAL INVENTORY (52)		X	X
ULRICH'S INT'L. PERIODICAL DIR. (480)		X	X
UNITED STATES POL. SCIENCE DOCUMENTS (93)		X	X
UPI INDEX (260-261)			X
U.S. EXPORTS (126)		X	X
U.S. PUBLIC SCHOOL DIR. (120)			X
WATER RESOURCES ABS. (117)		X	X
WATERNET (245)		X	X
WELDASEARCH (99)		X	X
WORLD AFFAIRS REPORT (167)			X
WORLD ALUMINUM ABS. (33)		X	X
WORLD TEXTILES (67)		X	X
ZOOLOGICAL RECORD (185)		X	X

THE SEGMENTS OF CSIN

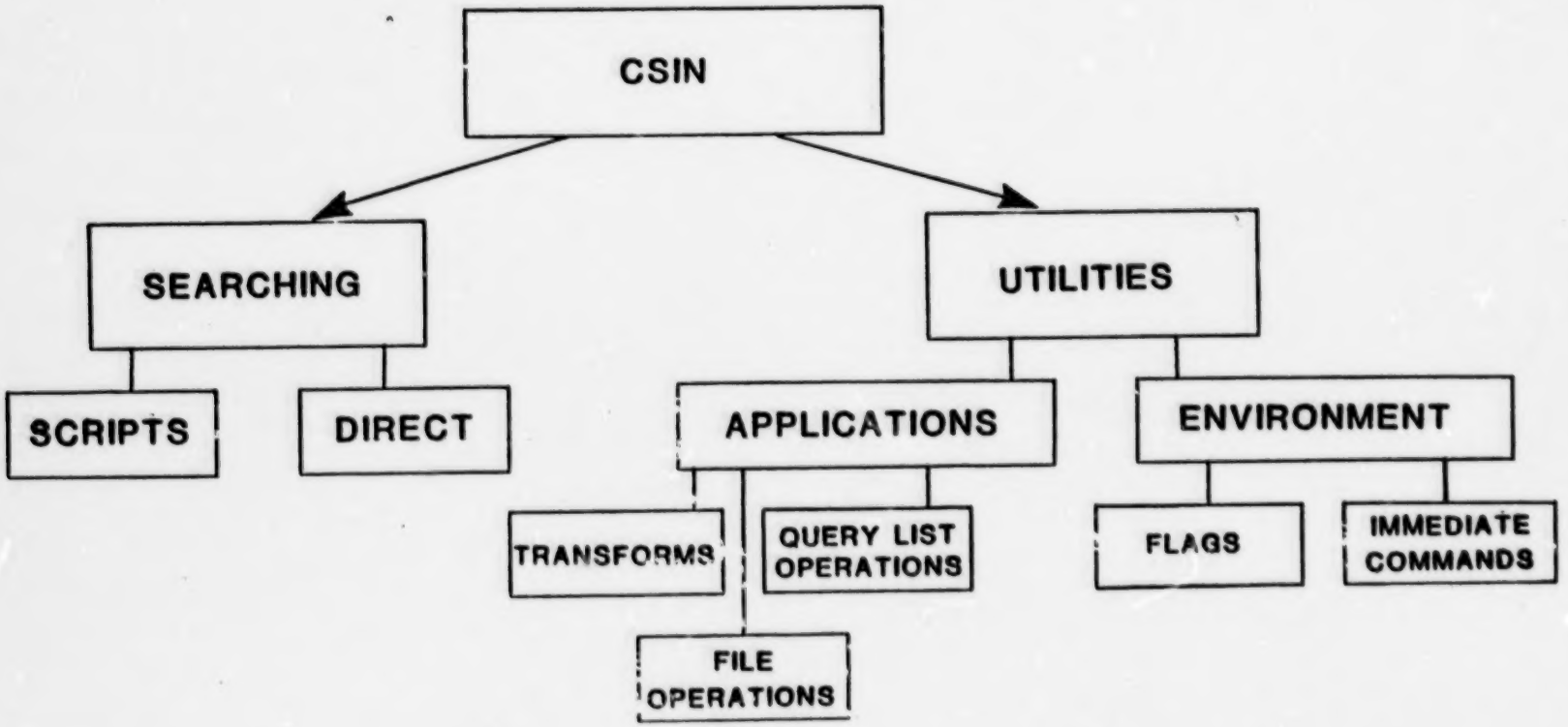

Figure 1

CSIN STANDARD QUERY LISTS

- DESIGNED BY PROFESSIONAL SEARCHERS
- PURPOSE IS TO SERVE AS A GUIDELINE

administration	mam
carcin	mammals
carcinogen	mutagen
f+wf	repro
fish + wfowl	tox
reproduction	toxicity
human	

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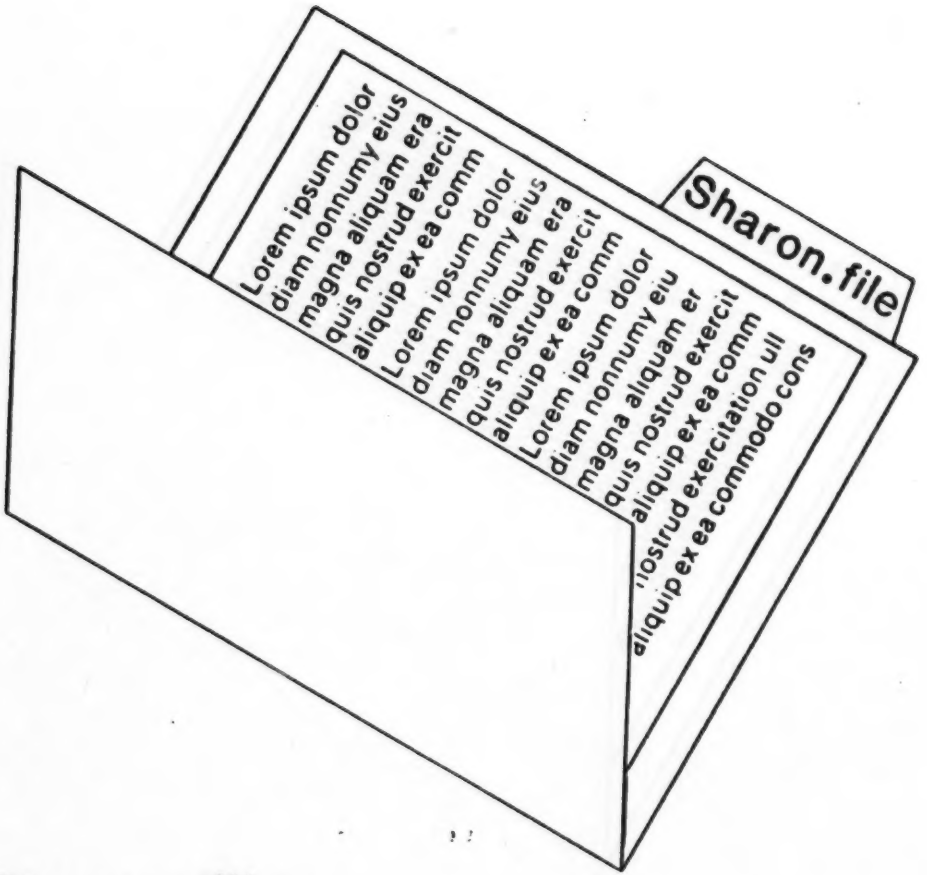
Figure 2

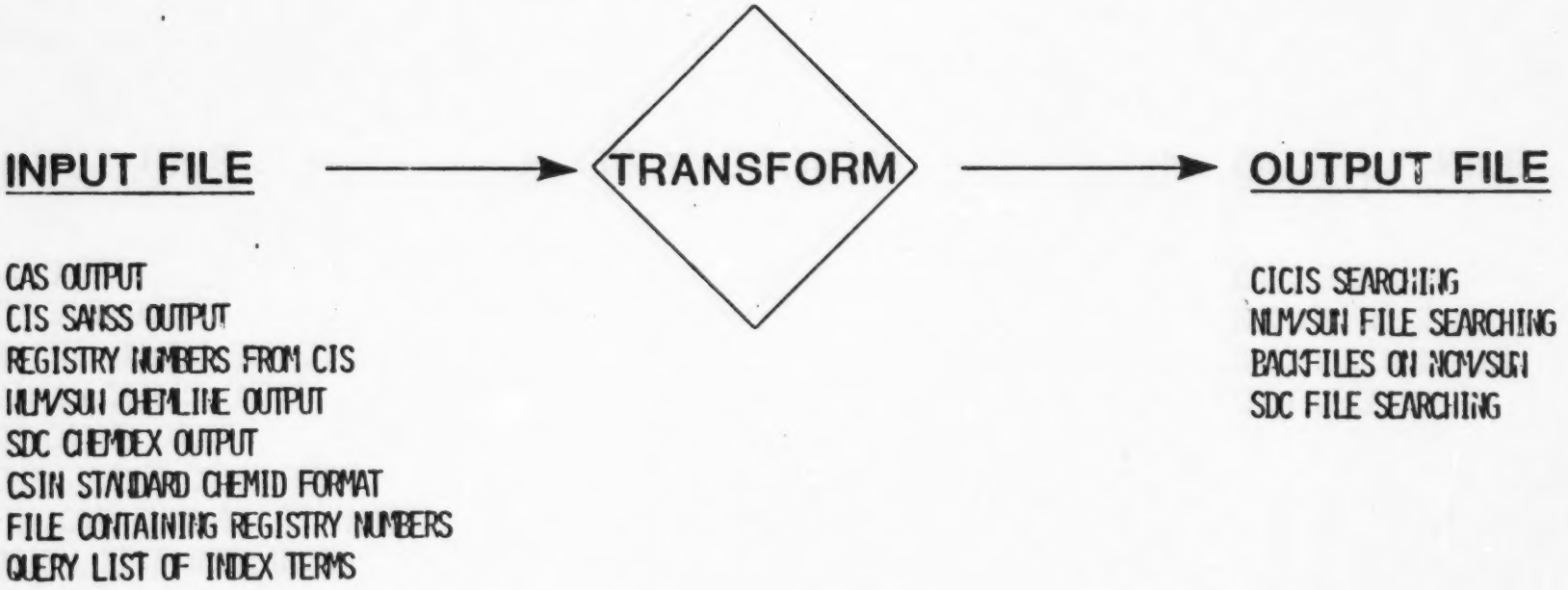


CSIN user files:

- **chemical information from a database**
- **files typed in using the editor**

Figure 3

TRANSFORMS



TRANSFORM: A TRANSLATION FROM ONE FORMAT TO A FORMAT SUITABLE FOR SEARCHING

Figure 4

CSIN USERS

ORGANIZATIONS TRAINED IN THE USE OF CSIN THROUGH MARCH 1984

PUBLIC SECTOR - U.S.

1. AGENCY FOR INTERNATIONAL DEVELOPMENT
2. CENTERS FOR DISEASE CONTROL
   - CENTERS FOR DISEASE CONTROL, HEADQUARTERS, ATLANTA, GA
   - CENTERS FOR DISEASE CONTROL, REGION 1, BOSTON, MA
   - CENTERS FOR DISEASE CONTROL, REGION 2, NEW YORK, NY
   - CENTERS FOR DISEASE CONTROL, REGION 5, CHICAGO, IL
3. COUNCIL ON ENVIRONMENTAL QUALITY
4. CONSUMER PRODUCT SAFETY COMMISSION
5. DEFENSE TECHNICAL INFORMATION CENTER
6. DEPARTMENT OF COMMERCE
   - U.S. PATENT OFFICE
7. DEPARTMENT OF ENERGY
   - OFFICE FOR ENVIRONMENTAL SAFETY AND HEALTH (GERMANTOWN, MD)
   - BROOKHAVEN NATIONAL LAB
   - OAK RIDGE NATIONAL LAB
8. DEPARTMENT OF INTERIOR
   - FISH AND WILDLIFE SERVICE
9. DEPARTMENT OF JUSTICE
10. DEPARTMENT OF TRANSPORTATION
11. DEPARTMENT OF TREASURY
    - BUREAU OF ALCOHOL, TOBACCO AND FIREARMS
12. ENVIRONMENTAL PROTECTION AGENCY
    - OFFICE OF PESTICIDES AND TOXIC SUBSTANCES (WASHINGTON, DC)
    - OFFICE OF DRINKING WATER (WASHINGTON, DC)
    - CHEMICAL COORDINATION STAFF (WASHINGTON, DC)
    - EXPOSURE EVALUATION DIVISION (WASHINGTON, DC)
    - INFORMATION MANAGEMENT DIVISION (WASHINGTON, DC)
    - ENVIRONMENTAL CRITERIA ASSESSMENT OFFICE (CINCINNATI,OH)
    - CENTRAL LIBRARY SERVICES (RESEARCH TRIANGLE PARK, NC)
    - CENTRAL REGIONAL LIBRARY (ANNAPOLIS, MD)
    - EPA, REGION 1 (BOSTON, MA)
    - EPA, REGION 2 (NEW YORK, NY)
    - EPA, REGION 3 (PHILADELPHIA, PA)
    - EPA, REGION 4 (ATLANTA, GA)
    - EPA, REGION 5 (CHICAGO, IL)
    - EPA, REGION 9 (SAN FRANCISCO, CA)
    - OFFICE OF EMERGENCY AND REMEDIAL RESPONSE (WASHINGTON, DC)
    - EPA INFORMATION CLEARINGHOUSE (WASHINGTON, DC)
13. FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
14. FOOD AND DRUG ADMINISTRATION
    - BUREAU OF FOODS
    - MEDICAL LIBRARY
    - TOXICOLOGY DIVISION
15. LAWRENCE BERKELEY LABORATORY
16. LAWRENCE LIVERMORE NATIONAL LABORATORY
17. LIBRARY OF CONGRESS (CRS)
18. LOS ALAMOS NATIONAL LABORATORY
19. NATIONAL ACADEMY OF SCIENCES

20. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
    - NASA INDUSTRIAL APPLICATIONS CENTER
    - JOHN F. KENNEDY SPACE CENTER
21. NATIONAL BUREAU OF STANDARDS
22. NATIONAL CENTER FOR TOXICOLOGICAL RESEARCH
23. NATIONAL GOVERNORS ASSOCIATION
24. NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES
25. NATIONAL INSTITUTES OF HEALTH
26. NATIONAL LIBRARY OF MEDICINE
27. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
28. NATIONAL TECHNICAL INFORMATION SERVICE
29. NATIONAL TOXICOLOGY PROGRAM
30. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
31. STATE OF CALIFORNIA
    - CALIFORNIA AIR RESOURCES BOARD
    - DEPARTMENT OF FOOD AND AGRICULTURE
    - STATE WATER RESOURCES CONTROL BOARD
32. STATE OF DELAWARE
    - AIR RESOURCES DIVISION
33. STATE OF ILLINOIS
    - DEPARTMENT OF PUBLIC HEALTH
34. STATE OF MARYLAND
    - DEPARTMENT OF HEALTH AND MENTAL HYGIENE
35. STATE OF MICHIGAN
    - DEPARTMENT OF NATURAL RESOURCES
36. STATE OF NEW JERSEY
    - DEPARTMENT OF HEALTH
37. STATE OF NEW YORK
    - DEPARTMENT OF SOLID WASTE
38. STATE OF NORTH CAROLINA
    - GOVERNOR'S OFFICE
    - DEPARTMENT OF AGRICULTURE
    - DEPARTMENT OF COMMERCE
    - DEPARTMENT OF HUMAN RESOURCES
    - DEPARTMENT OF LABOR
    - DEPARTMENT OF NATURAL RESOURCES
    - DIVISION OF HEALTH SERVICES
    - DIVISION OF ENVIRONMENTAL HEALTH
    - DIVISION OF EMERGENCY MANAGEMENT
39. STATE OF PENNSYLVANIA
    - ALLEGHENY COUNTY HEALTH DEPARTMENT
    - DEPARTMENT OF HEALTH (HARRISBURG, PA)
    - DEPARTMENT OF ENVIRONMENTAL RESOURCES (HARRISBURG, PA)
    - STATE LIBRARY SYSTEM
40. STATE OF WEST VIRGINIA
    - AIR POLLUTION CONTROL COMMISSION
41. U.S. AIR FORCE
    - USAF SCHOOL OF AEROSPACE MEDICINE (BROOKS AFB,TX)
    - USAF OCCUPATIONAL AND ENVIRONMENTAL HEALTH LAB (BROOKS AFB,TX)
    - USAF ENGINEERING SERVICE CENTER (TYNDALL AFB, FL)
42. U.S. ARMY ARMAMENT RESEARCH COMMISSION
43. U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
44. U.S. ARMY HUMAN ENGINEERING LAB

45. U.S. ARMY, CORP. OF ENGINEERS
    - OFFICE OF THE CHIEF OF ENGINEERS (WASHINGTON, DC)
    - CONSTRUCTION ENGINEERING RESEARCH LAB (CHAMPAIGN, IL)
    - USAE WATERWAYS EXPERIMENT STATION (VICKSBURG, MS)
    - GENERAL COUNSEL, SOUTH ATLANTIC DIVISION (ATLANTA, GA)
    - ENGINEERING DIVISION, ST. PAUL, MN
    - ENGINEERING DIVISION, OMAHA, NE
    - ENGINEERING DISTRICT, KANSAS CITY, MO
46. U.S. COAST GUARD
47. U.S. DEPARTMENT OF AGRICULTURE
48. U.S. GEOLOGICAL SURVEY
    - U.S. GEOLOGICAL SURVEY LIBRARY (RESTON, VA)
    - USGS NATIONAL WATER QUALITY LAB (ARVADA, CO)
    - QUALITY AND WATER BRANCH (RESTON, VA)
    - OFFICE OF HAZARDOUS WASTE HYDROLOGY (RESTON, VA)
    - WATER RESEARCH DIVISION (ALBANY, NY)
49. U.S. MARINES
    - HEADQUARTERS ENVIRONMENTAL GROUP (WASHINGTON, DC)
50. U.S. NAVY
    - ENVIRONMENTAL HEALTH CENTER (NORFOLK, VA)
    - NAVAL FACILITIES ENGINEERING COMMAND (WASHINGTON, DC)
    - SEA SYSTEMS COMMAND (WASHINGTON, DC)

PUBLIC SECTOR - FOREIGN

1. THE NETHERLANDS EMBASSY
2. CONCORD SCIENCE CORPORATION (CANADA)

PUBLIC INTEREST

1. ASSOCIATION OF NEW JERSEY ENVIRONMENTAL COMMISSIONS
2. ENVIRONMENTAL ACTION FOUNDATION
3. ENVIRONMENTAL DEFENSE FUND
4. NATURAL RESOURCES DEFENSE COUNCIL
5. TEXAS/LOUISIANA COALITION
    - LEAGUE OF WOMEN'S VOTERS (HOUSTON, TX)
    - ATTORNEY GENERAL'S OFFICE OF LOUISIANA
    - ECOLOGY CENTER OF LOUISIANA
6. WORKERS INSTITUTE OF SAFETY AND HEALTH
7. CLEAN WATER ACTION PROJECT

PRIVATE SECTOR

1. ALLERGAN PHARMACEUTICALS
2. AMERICAN CYANAMIDE
3. AMOCO CHEMICAL CORP.
4. ATLANTIC RICHFIELD COMPANY (ARCO)
    - LOS ANGELES, CA
    - NEWTOWN, PA
5. BIONETICS
6. CHEMICAL ABSTRACTS SERVICE
7. COMPUTER SCIENCES CORPORATION
8. CIBA-GEIGY
9. CHEMICAL INDUSTRY INSTITUTE OF TOXICOLOGY
10. DAMES AND MOORE

11. DOW
12. DUPONT
13. DYNAMAC
14. EG&G, FLORIDA
15. ETHYL CORP.
16. EXXON
17. FORD MOTOR CO.
18. FOUR CORNERS PIPELINE, INC.
19. GARDEN STATE LABS
20. GILLETTE RESEARCH
21. HALL CHEMICAL CO.
22. IBM
23. ICI AMERICAS
24. INCO, LTD., (ONTARIO, CANADA)
25. INDUSTRIAL HEALTH ENGINEERING
26. KETRON, INC.
27. LABAT-ANDERSON, INC.
28. MALLINCKRODT, INC.
29. MCDONELL DOUGLAS
30. MCNEILL PHARMACEUTICAL
31. KODAK
32. MITRE COPRPORATION
33. MOBIL OIL
34. MONSANTO
35. MUELLER ASSOCIATES
36. NEW WORLD SERVICES
37. OLIN
38. PROCTER AND GAMBLE
39. RESEARCH TRIANGLE INSTITUTE
40. REVLON
41. REYNOLDS ALUMINUM
42. S-CUBED CORPORATION
43. SYSTEM DEVELOPMENT CORPORATION
44. SHELL OIL
45. STANDARD OIL OF INDIANA
46. STAUFFER CHEMICAL
47. TECHNASSOCIATES
48. TRACOR-JITCO
49. UNION OIL
50. WELCHEM, INC.
51. VICKS RESEARCH

ACADEMIA

1. CALIFORNIA INSTITUTE OF TECHNOLOGY
2. JOHNS HOPKINS UNIVERSITY
   - APPLIED PHYSICS LAB
3. UNIVERSITY OF CALIFORNIA/DAVIS
4. UNIVERSITY OF CALIFORNIA/SANTA BARABRA
5. UNIVERSITY OF MIAMI
6. UNIVERSITY OF NORTH CAROLINA
7. UNIVERSITY OF SOUTHERN CALIFORNIA
8. UNIVERSITY OF TEXAS/AUSTIN
9. WASHINGTON UNIVERSITY MEDICAL SCHOOL
10. WESTERN CAROLINA UNIVERSITY